

## Gila Woodpecker (*Melanerpes uropygialis*)

### Legal Status

**State:** Endangered

**Federal:** Bureau of Land Management  
Sensitive Species, U.S. Fish and Wildlife  
Service Bird of Conservation Concern

**Critical Habitat:** N/A

**Recovery Planning:** N/A



Photo courtesy of Dr. Lloyd Glenn Ingles,  
California Academy of Sciences.

### Taxonomy

The Gila woodpecker (*Melanerpes uropygialis*) has been considered part of a superspecies group with red-bellied (*M. carolinus*), West Indian (*M. supercilialis*), golden-fronted (*M. aurifrons*), and Hoffmann's (*M. hoffmannii*) woodpeckers (Short 1982; AOU 1998). Peters (1948) considered it conspecific with the gray-breasted woodpecker (*M. hypopolius*), but Selander and Giller (1963) provided reasons for treating the latter as a distinct species (AOU 1998). Descriptions of the species' physical characteristics, behavior, and distribution are provided in a variety of field guides (e.g., Peterson 1990; Sibley 2000; National Geographic 2002).

### Distribution

#### General

The Gila woodpecker's distribution ranges from near sea level in the Colorado River Valley up to 4,000 feet elevation in desert canyons and foothills (Bent 1939). The Gila woodpecker is predominantly a permanent resident across its range in areas of southeast California, southern Nevada (Alcorn 1988), central Arizona north to Mogollon Rim (Edwards and Schnell 2000), and extreme southwestern New Mexico (Hubbard 1978). It also ranges south in Mexico through Baja California, excluding northwestern Baja California Norte (Wilbur

1987) and western Mexico from the U.S.–Mexico border south to Central Mexico (Howell and Webb 1995; AOU 1998).

## Distribution and Occurrences within the Plan Area

### Historical

The Gila woodpecker is an uncommon to fairly common resident in Southern California along the Colorado River, and locally near Brawley, Imperial County (Garrett and Dunn 1981). Historically in southeastern California, van Rossem (1933) and Grinnell and Miller (1944) thought this species was spreading north in the Imperial Valley from the Colorado River Delta. More recently, it has declined in the Plan Area (Garrett and Dunn 1981; Rosenberg et al. 1991; Kaufman 1996). The Desert Renewable Energy Conservation Plan (DRECP) Area includes 38 historical (i.e., pre-1990) California Natural Diversity Database (CNDDDB) records, all of which are along the Lower Colorado River between the area where it intersects the California state line and the Mexican border (Figure SP-B08) (CDFW 2013).

### Recent

The CNDDDB contains 20 recent (i.e., since 1990) occurrence locations for the Gila woodpecker in the Plan Area (CDFW 2013). All but three occur on public land (e.g., Bureau of Land Management, U.S. Fish and Wildlife Service, Bureau of Reclamation, or Imperial County); one is on private land; and two occur on land of undocumented ownership (CDFW 2013). All the recent documented occurrences in the CNDDDB are along or in close proximity to the Colorado River and within the Imperial Valley, particularly south of the Salton Sea, and in desert washes as far east as Joshua Tree National Park. (Figure SP-B08). There are also 31 recent occurrences in the eBird database that mostly occur on private lands south of the Salton Sea, and one on public lands in the Lower Colorado River area (Figure SP-B08) (Dudek 2013).

## Natural History

### Habitat Requirements

For breeding habitat, Gila woodpeckers require cacti or trees with large trunks that are used for nesting sites. Suitable habitats include riparian woodlands, uplands with concentrations of large columnar cacti, old-growth xeric-riparian wash woodlands, urban or suburban areas, and agricultural areas (see Table 1) (Rosenberg et al. 1987; Edwards and Schnell 2000). Dominant canopy species in suitable habitat in the Plan Area include Fremont cottonwood (*Populus fremontii*) and Goodding's willow (*Salix gooddingii*) in riparian woodlands; blue palo verde (*Cercidium floridum*) and ironwood (*Olneya tesota*) in xeric-riparian woodlands; giant saguaro (*Carnegiea gigantea*) in saguaro scrub communities; and various palms, eucalyptus (*Eucalyptus* spp.), and Athel tamarisk (*Tamarix aphylla*) in human-altered environments (Edwards and Schnell 2000). Rosenberg et al. (1991, 1987) found that Gila woodpeckers preferred large patches of woody riparian vegetation for nesting (greater than 49 acres), but others have documented the species in various habitat types, such as desert washes (McCreedy 2008) and residential areas (Mills et al. 1989).

**Table 1.** Habitat Associations for Gila Woodpecker

Land Cover Type	Land Cover Use	Habitat Designation	Habitat Parameters	Supporting Information
Saguaro scrub	Breeding, foraging	Primary	Mature saguaro cacti for breeding (avg height = 7.8 meters [25.6 feet], > 4–5 meters [13.1–16.4 feet])	McCreedy 2008; Korol and Hutto 1984; Kerpez and Smith 1990a
Desert riparian woodland	Breeding, foraging	Primary	Mature cottonwood and willow trees	Edwards and Schnell 2000
Xeric-riparian woodland	Breeding, foraging	Secondary	For breeding, mature palo verde (avg height = 7.3 meters [23.9 feet]) or mesquite trees	McCreedy 2008; Edwards and Schnell 2000; Anderson et al. 1982

## BIRDS

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Land Cover Type	Land Cover Use	Habitat Designation	Habitat Parameters	Supporting Information
Suburban	Breeding, foraging	Secondary	Various nonnative species, cottonwood, mesquite, and willow trees	Edwards and Schnell 2000; Rosenberg et al. 1987

**Notes:** avg = average; > = greater than

### Foraging Requirements

Gila woodpeckers are omnivorous. They forage primarily on large trees, columnar cacti, and mistletoe (*Phoradendron californicum*), gleaning insects and eating flowers or fruit; though they will occasionally ground-feed when food is easily visible (Edwards and Schnell 2000). Seasonal patterns include feeding on saguaro and other cacti during the summer, when flowers and fruit are present, and mistletoe during the winter, when mistletoe berries are present (Edwards and Schnell 2000). Where saguaro are less common, such as the Lower Colorado River Valley, Gila woodpeckers feed primarily on insects (beetles, moths, butterflies, ants, and cicadas) (Anderson et al. 1982). In southeast California, the species has been observed as a nest predator, eating eggs of Lucy's warbler (*Vermivora luciae*), yellow warbler (*Dendroica petechia*), and Bell's vireo (*Vireo bellii*) (Edwards and Schnell 2000).

### Reproduction

The breeding season throughout the Gila woodpecker's range generally begins in April and lasts through August (Anderson et al. 1982; Edwards and Schnell 2000). Fledgling occurs when nestlings are approximately 4 weeks of age (Kaufman 1996) and Gila woodpeckers will occasionally lay multiple clutches per breeding season (Phillips et al. 1964; Inouye et al. 1981). Along the lower Colorado River, fledglings appear during April (Anderson et al. 1982) and family groups with first brood offspring may remain together as adults attend to second nests (Rosenberg et al. 1991), with second broods fledgling at the end of June (Edwards and Schnell 2000). Clutch size is commonly three to five eggs (Terres 1991). For 84 egg

sets stored at the Western Foundation for Vertebrate Zoology, clutch sized ranged from two to seven eggs (mean  $3.74 \pm 0.87$  SD) (Edwards and Schnell 2000). Both the male and female assist in incubation (Hensley 1959) and actively deliver food to young (Edwards and Schnell 2000).

### Spatial Behavior

Gila woodpeckers are largely permanent local residents (Edwards and Schnell 2000). Some move short distances seasonally and, when not nesting, will move locally to concentrated food sources (Kaufman 1996).

Gila woodpecker territory size is habitat-dependent. A wash at Organ Pipe National Monument contained three territories averaging 4.6 hectares (approximately 11.3 acres) (Hensley 1954). Two territories in an “open desert area” averaged 9.9 hectares (approximately 24.4 acres) in extent (Edwards and Schnell 2000), while in a mature cottonwood stand in Grant County, New Mexico, Brenowitz (1978) observed six breeding pairs spaced 120 meters (approximately 394 feet) apart ( $SE \pm 7$  feet). Pairs defended an area up to 40 to 50 meters (approximately 131 to 164 feet) from their nest from gilded flickers (*Colaptes chrysoides*), European starlings (*Sturnus vulgaris*), and other Gila woodpeckers during the pre-nesting period of breeding season.

### Ecological Relationships

Gila woodpeckers act aggressively toward numerous species, as noted in Spatial Behavior, but also provide cavities for many secondary cavity-nesters, such as the non-native European starling, which they may compete with for nest cavities (Brenowitz 1978; Kerpez and Smith 1990b). According to Brush et al (1983), in southwestern Arizona, three pairs of European starlings usurped cavities that Gila woodpeckers had used the year before (Brush et al. 1983); however, the woodpeckers excavated new cavities and bred successfully. Brenowitz (1978) observed that Gila woodpeckers were territorial toward species that overlapped with them in nest-cavity use (European starlings, gilded flickers, conspecifics) but not toward species that used different nest sites. Aggression has also been documented toward brown-crested flycatcher (*Myiarchus tyrannulus*) (Brush et al. 1983), bronzed cowbird (*Molothrus aeneus*), Bendire's

thrasher (*Toxostoma bendirei*), and curve-billed thrasher (*T. curvirostre*) by Gilman (1915), as well as toward cactus wren (*Campylorhynchus brunneicapillus*), house finch (*Carpodacus mexicanus*), and white-winged dove (*Zenaida asiatica*) by Martindale and Lamm (1984). Steenbergh and Lowe (1977) noted that Gila woodpeckers, along with several other bird species, are potentially important disseminators of saguaro cactus seeds.

## Population Status and Trends

**Global:** Secure (NatureServe 2011)

**State:** Imperiled/Critically Imperiled (NatureServe 2011)

**Within Plan Area:** Declining (McCreedy 2008)

Recently, Gila woodpecker populations have declined significantly in southeast California (Rosenberg et al. 1991; Kaufman 1996), possibly due to the clearing of woodlands in the Colorado River Valley and Imperial Valley and nest-site competition with European starlings (Garrett and Dunn 1981). Rosenberg et al. (1991) indicated that although the species was formerly more common and widespread in Lower Colorado River Valley, it had become restricted to relatively few areas where some tall trees were retained in native habitats. About 200 breeding individuals were estimated to occur on the California side of the Lower Colorado River Valley in 1983 (Rosenberg et al. 1991), but Laymon and Halterman (1986) estimated that fewer than 30 pairs survived in California altogether. Using Breeding Bird Survey data, the Patuxent Wildlife Research Center reports a significant population trend of -2.2% ( $P=0.04$ ) for Gila woodpeckers in Arizona from 1980 to 2007, which is the time period for which most surveys have occurred (Sauer et al. 2008). McCreedy (2008) projected a negative population trend of more than 1.5% per year in southeastern California from 1966 to 2003.

## Threats and Environmental Stressors

Threats and environmental stressors to Gila woodpeckers in the Plan Area include habitat loss and potentially nest site competition, with European starlings. In the southwestern United States, human development and the spread of invasive species have fragmented

and degraded riparian woodland and desert habitat, adversely affecting Gila woodpecker populations.

Water diversions, vegetation clearing for agriculture or development, grazing, recreation, wood cutting, and other human-induced disturbances have altered and fragmented riparian communities in the southwestern United States (Szaro 1989). Altered hydrology and fire regimes in the Lower Colorado River Valley have resulted in large-scale conversion of cottonwood-willow riparian forest to salt-cedar (*Tamarix* sp.) stands (Di Tomaso 1998). Gila woodpeckers will occasionally nest in large Athel tamarisk, but the more common salt-cedar stands that dominate the lower Colorado River are not viable Gila woodpecker nesting habitat (Rosenberg et al. 1991). Few mature native woodlands remain, which forces birds into less suitable habitats (Remsen 1978) and restricts the viability of local populations (Rosenberg et al. 1991). Isolated mature cottonwood-willow groves of less than 20 hectares (approximately 49.4 acres) were devoid of Gila woodpeckers in the Lower Colorado River Valley. In general, the smaller the habitat patch, the less likely it is that this species will be present (Rosenberg et al. 1991).

Human development also continues to threaten Gila woodpecker habitat in desert landscapes, facilitating invasive species spread and altering ecological processes. Invasions of several fire-adapted exotic annuals grasses have altered the fire regime in the Mojave and Colorado deserts, resulting in more extensive and frequent burns (Brooks 1999). Vegetation that Gila woodpeckers require for nesting in upland habitat, such as large columnar cacti and palo verde and mesquite trees, are not adapted to high-frequency fire regimes and thus require longer periods to recover from burns.

Vegetative species are not the only exotic species to adversely affect Gila woodpeckers. From 1968 to 1976, the number of European starlings in the southwestern U.S. more than doubled; competition between starlings and Gila woodpeckers will probably become more severe and widespread with time (Edwards and Schnell 2000, see *Ecological Relationships* for more information on nest site competition with European starlings). Furthermore, declining Gila woodpecker numbers could affect saguaro cactus populations as the woodpecker may be an important seed disperser and pollinator (Steenbergh and

Lowe 1977; Edwards and Schnell 2000). The future of this cavity-nesting bird remains highly dependent upon the continued existence of large saguaro cacti (Edwards and Schnell 2000).

### Conservation and Management Activities

Large-scale cottonwood-plantation and tamarisk removal projects are underway in the Lower Colorado River Valley, which may add Gila woodpecker habitat in the future (McCreedy 2008). For example, the Lower Colorado River Multi-Species Conservation Program (LCRMSCP) has a goal of creating 1,702 acres of cottonwood-willow habitat consisting of no habitat patches less than 50 acres in size (LCRMSCP 2004); Rosenberg et al. (1991) suggest that patches of a lesser size may not support Gila woodpecker populations. However, though Gila woodpeckers are endangered in California, there are no current statewide management programs to conserve this species (McCreedy 2008).

### Data Characterization

There are relatively few (16) recent occurrences in the CNDDB (CDFW 2013). No recent systematic surveys for the species have been conducted, so relatively little is known about the current population. Only Milpitas Wash has been recently surveyed in Imperial County, and the total number of breeding pairs in the county is unknown (McCreedy 2008). A census across the woodpecker's range in California, including the xeric washes in Imperial County, would inform conservation efforts as to the value of these habitats to Gila woodpecker conservation efforts. Given the extent of habitat conversion and human population growth in the Gila woodpecker's range, further investigation is warranted into the effects of human activities on the species. Although Gila woodpeckers may find certain human-dominated landscapes suitable breeding habitat (McCreedy 2008; Rosenberg et al. 1987), the species' numbers in southeastern California are still declining, warranting careful monitoring and evaluation.

Demographic data are also extremely limited for Gila woodpeckers. Studies of productivity (including data in natural versus human-dominated environments), survivorship, and fire response (e.g., nest success, emigration, carrying capacity of habitats adjacent to burns)



have not been conducted. Although competition between European starlings and Gila woodpeckers for nest cavities is documented (Kerpez and Smith 1990b; Brenowitz 1978), Koenig (2003) could not find significant evidence that European starling invasion is directly tied to Gila woodpecker population declines. This uncertainty warrants further study to determine the impact of European starlings on Gila woodpecker populations to inform conservation efforts.

## Management and Monitoring Considerations

Careful monitoring of the Gila woodpecker population in the Plan Area is needed to inform conservation action implementation. There is a general lack of understanding regarding Gila woodpecker demographics in California, the most immediate or pervasive threats to the species, and its habitat preferences, including tolerance of human activities. Despite this uncertainty, large saguaro cacti or other mature trees, such as cottonwood or willow, should be given special consideration when preserving or restoring Gila woodpecker habitat. In riparian areas, woodpeckers may require more than 50 acres of woody vegetation, but Tweit and Tweit (1986) noted that residential development at a density of 2 houses per hectare (approximately 2.47 acres) did not reduce Gila woodpecker densities if native vegetation was maintained. The habitat elements that limit Gila woodpecker's use of xeric areas lacking large saguaros are not well understood, but Lynn et al. (2008) suggest that human-created water sources may be a valuable resource to resident bird populations in these environments. This study suggests that maintaining natural water sources (e.g., natural rock tanks [tinajas], springs, and ephemeral washes) in upland areas, or augmenting natural sources as necessary, is important to preserving viable Gila woodpecker habitat.

## Species Modeled Habitat Distribution

This section provides the results of habitat modeling for Gila woodpecker, using available spatial information and occurrence information, as appropriate. For this reason, the term “modeled suitable habitat” is used in this section to distinguish modeled habitat from the habitat information provided in Habitat Requirements, which may include additional habitat and/or microhabitat factors that

are important for species occupation, but for which information is not available for habitat modeling.

There are 1,485,338 acres of modeled suitable general habitat for Gila woodpecker in the Plan Area. Appendix C includes a figure showing the modeled suitable habitat in the Plan Area.

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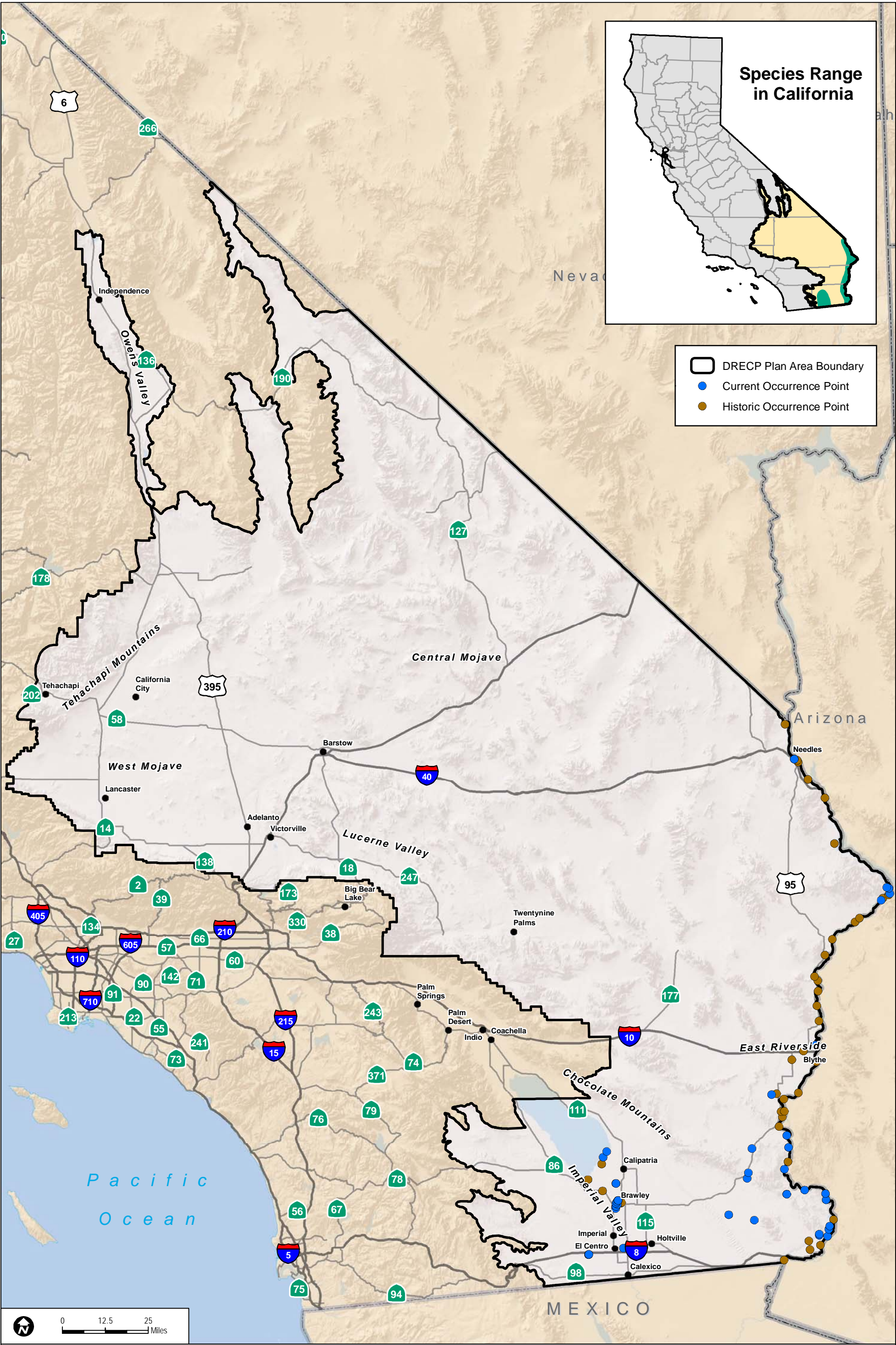
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Sources: ESRI (2014); DRECP Species Occurrence Database (2013), CWHR (2008)

**FIGURE SP-B06**  
**Gila Woodpecker Occurrences in the Plan Area**